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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,441	03/01/2004	Seung Chul Ha	P69523US0	1182
43569	7590	07/26/2005	EXAMINER	
MAYER, BROWN, ROWE & MAW LLP 1909 K STREET, N.W. WASHINGTON, DC 20006			CYGAN, MICHAEL T	
			ART UNIT	PAPER NUMBER
			2855	

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/788,441

Applicant(s)

HA ET AL.

Examiner

Michael Cygan

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 9-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/1/04, 6/22/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Claims 9-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 14 June 2005.

Applicant's election with traverse of the restriction in the reply filed on 14 June 2005 is acknowledged. The traversal is on the ground(s) that it would not be unduly burdensome. This is not found persuasive because of the variety of methods which can be used to form a semiconductor structure. An actual and significant burden would be present in searching not only a particular structure, but also a particular method of making a similar structure. Note that the method is directed towards making a sensor having a heater "on one side of the semiconductor substrate"; whereas the apparatus is directed towards a sensor having a heater "placed in the membrane." Clearly, then, the method is directed towards a different apparatus (at least potentially) than the claims directed solely to the apparatus. It would be unduly burdensome to search both an apparatus (made from any of a variety of different processing methods) and a method (producing any of a number of different types of sensors).

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Onishi (JP 2000-298108). Onishi discloses the claimed invention. A semiconductor substrate [12] having a well of a membrane [16,22] wherein a sidewall [21] of the well is insulated and a bottom of the well [16] includes an insulation film (silicon dioxide);
a sensor material (tin oxide film [26]) placed in the well and having a variable resistance to a gas concentration;
a heater [20] placed in the membrane and keeping a temperature of the substrate constant;
and an insulation film [21] between electrode [24] and substrate [12].
See entire document; especially Figure 11; paragraphs 42, 47, 48, and 69.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi (JP 2000-298108) in view of Gardner (US 6,111,280). Onishi teaches the claimed invention except for a double film of silicon oxide/silicon nitride comprising the membrane. Gardner teaches a double film of silicon oxide/silicon nitride comprising a membrane in a heater for a semiconductor gas sensor; see column 3 lines 32-54. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use a double film of silicon oxide/silicon nitride comprising a membrane as taught by Gardner in the invention taught by Onishi to form the membrane/heater structure, since Gardner teaches that either or both are advantageously used as an insulating layer.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi (JP 2000-298108) in view of Lewis (US 5,571,401). Onishi teaches the claimed invention except for the sensor material being a mixture of insulator and conductor. Lewis teaches the use of mixed insulator/conductor films as an improvement over the prior tin oxide sensors for semiconductor gas sensors; see column 1 lines 26-43 and column 2 lines 1-15. It would have been obvious to one having ordinary skill in the art at the time the invention was made to use mixed insulator/conductor films as sensor elements as taught by Lewis in the invention taught by Onishi, since Lewis teaches the advantage of replacing tin oxide sensor films (which are used in Onishi) with mixed insulator/conductor films to gain the advantages of response and chemical control (column 1 lines 25-57).


Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure; see attached PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is (571) 272-2175. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on 571-272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


MICHAEL CYGAN, Ph.D.
PRIMARY EXAMINER